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# Assessment of Drinking Water Contamination from the Water Source to the Consumer in Palapye Region, Botswana

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**Abstract :** Poor water quality is of great concern to human health as it can cause disease outbreaks. A standard practice today, in developed countries, is that people should be provided with safe-reliable drinking water, as safe drinking water is recognized as a basic human right and a cost effective measure of reducing diseases. Over 1.1 billion people worldwide lack access to a safe water supply and as a result, the majority are forced to use polluted surface or groundwater. It is widely accepted that our water supply systems are susceptible to the intentional or accidental contamination .Water quality degradation may occur anywhere in the path that water takes from the water source to the consumer. Chlorine is believed to be an effective tool in disinfecting water, but its concentration may decrease with time due to consumption by chemical reactions. This shows that we are at the risk of being infected by waterborne diseases if chlorine in water falls below the required level of 0.2-1mg/liter which should be maintained in water and some contaminants enter into the water distribution system. It is believed that the lack of adequate sanitation also contributes to the contamination of water globally. This study therefore, assesses drinking water contamination from the source to the consumer by identifying the point vulnerable to contamination from the source to the consumer in the study area .To identify the point vulnerable to contamination, water was sampled monthly from boreholes, water treatment plant, water distribution system (WDS), service reservoirs and consumer taps from all the twenty (20) villages of Palapye region. Sampled water was then taken to the laboratory for testing and analysis of microbiological and chemical parameters. Water quality analysis were then compared with Botswana drinking water quality standards (BOS32:2009) to see if they comply. Major sources of water contamination identified during site visits were the livestock which were found drinking stagnant water from leaking pipes in 90 percent of the villages. Soils structure around the area was negatively affected because of livestock movement even vegetation in the area. In conclusion microbiological parameters of water in the study area do not comply with drinking water standards, some microbiological parameters in water indicated that livestock do not only affect land degradation but also the quality of water. Chlorine has been applied to water over some years but it is not effective enough thus preventative measures have to be developed, to prevent contaminants from reaching water. Remember: Prevention is better than cure.

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